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IF THE CORN BORER COMES  
(Corn Growing States)

RELEASE #4, Week of March 26

NOT FOR PUBLICATION

ANNOUNCEMENT: Inexorably, each year the corn borer widens out the corn growing territory in which it is established as a crop pest. Rigorous control measures retard the advance of this insect, however. Today, in the fourth of the nine weekly 10-minute periods set aside for corn borer information from Station \_\_\_\_\_, a specialist of the U. S. Department of Agriculture is going to answer some questions about how, IF THE CORN BORER COMES, it will get to this region. Here's the first question:

ANNOUNCER: How does the corn borer spread naturally?

EXPERT: The corn borer army uses modern methods of attack. It flies into new territory. Nearly all spread of the borer by natural means takes place during the 3 or 4 weeks in June and July during which the borer moths are flying and laying the eggs which become borers to prey upon corn. These moths fly great distances; some of them, marked for identification, have been found as much as 20 miles from places where they were liberated.

ANNOUNCER: How long does a corn borer moth continue its operations?

EXPERT: The average life of borer moths ranges from 14 to 20 days. In this time it may lay eggs, starting a new generation of hungry young borers, over wide areas. How far it will range and in what directions are largely governed by the direction and velocity of the winds, especially the night winds, during the moth stage.

ANNOUNCER: What other means besides the dispersion of the moths will carry the borer into new territory?

EXPERT: Rivers and streams may carry plant material containing live borers. During flood seasons large quantities of old cornstalks are carried down stream from infested areas, and lodge on banks in "clean" territory. To keep down spread by this means, the federal government carries on careful scouting and thorough clean-up along all river valleys leading out of infested areas.

ANNOUNCER: It seems that the borer spreads naturally by dispersion of moths and drifting of infested material down streams. Now tell us what ways and means it finds of spreading artificially.

EXPERT: The principal cause of long distance spread is transportation of infested





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plant products. The borer first came to this country 18 years ago in a shipment of infested raw broom corn. This was, of course, before any law on the subject or any power to guard against such a pest had been provided. The most acute danger point of this sort nowadays is the shipment of infested seed corn for roasting ears. Corn stalks used as packing material, broom corn, stalks, of all sorghums, and Sudan grass also may carry borers from Middle Western infested fields.

In New England the plant materials entering commerce most likely to be infested during certain periods of the year are celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye or other straws used as packing material, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnias, hollyhock, gladiolus, and dahlia.

To prevent long-distance spread through shipment of infested material, the U. S. Department of Agriculture maintains quarantine, scouting, and clean-up methods. So far these devices have been successful.

ANNOUNCER: I've heard that there are two different types of borers--2- generation and 1-generation. Tell me the difference between them, will you?

EXPERT: In the Great Lakes region the corn borer reproduces but once a year, hence the borers of that region are known as the 1-generation form. There the moths emerge in June, lay their eggs, and the larvae hatching from the eggs do the damage to the corn crop, overwinter in stalks, stubble, or wherever they can find refuge, go through a short pupal stage, and turn once more into moths the next June.

In New England the 2-generation borer has its stronghold. Moths of this type of borer emerge in the late spring and lay their eggs, from which the first brood of larvae is produced. This brood matures rapidly, and produces another lot of moths in August. This second set of moths lays eggs which hatch into larvae in August and September, and the larvae overwinter as do the 1-generation larvae in the Great Lakes region.

One saving climatic feature of recent years has been that in the 2-generation area the seasons have been dry and cooler than usual for the last few years so that the second generation was weakened and a great many larvae weakened or failed to mature until the following spring.

ANNOUNCER: Since the moths of the corn borer carry the new generations which will damage corn this season, why not trap them when they fly next June?

EXPERT: When the fight on the corn borer started, that idea occurred to a number of persons. It was thoroughly tested out, but no sort of trap has been found that will give control of the borer. The first type of trap tried was the light trap, which was designed to lure the moths with a light. This



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is one of the oldest methods used in trying to control insect pests, but it never has been successful in the case of any one of the pests.

In the corn borer region federal and state specialists tried lights of different types and colors; gasoline and kerosene lanterns, acetylene lights, and electric lights of white, yellow, blue, green, red, and violet. The experiments were carried out in fields where moths were known to be numerous and at the time of greatest activity of the insects. But very few moths were attracted to the traps, no matter what sorts of lights were used.

Repeated tests wound up with the disappointing result of less than 1 per cent of the total corn borer moths in any one vicinity attracted to light traps. Take this example: at Monroe, Mich., in the corn borer moth season of 1927, a trap highly recommended by the manufacturer was set for five nights. During that time it caught 30 female and 20 male borer moths. In the same 4-acre field, scouts collected about 1,000 egg masses.

ANNOUNCER: Well, how about bait traps?

EXPERT: No luck there, either. All sorts of baits have been tried. Various syrups, fresh and decaying fruit, honey, stale "near beer" and various aromatic oils each drew a few moths where tests were made. But none attracted a large enough number of the moths present in any field to offer promise of control.

ANNOUNCER: It seems, then, that the best time to destroy the borer is fall, winter, and spring, when it is inactive inside waste corn material.

EXPERT: Exactly. The borer is a moth for only 3 or 4 weeks, but it is a caterpillar inside the corn stalk or cob for 7 months. While it is a moth it is a highly mobile insect, hard to catch, and therefore hard to destroy. While it is a caterpillar it succumbs when its harboring places are destroyed.

ANNOUNCER: U. S. Department of Agriculture and State specialists have warned farmers to be on the lookout for corn borers, this season, but have also warned that other caterpillars may be mistaken for borers. Recently we've had described to us the corn ear worm and its difference from the borer pointed out. Now are there other caterpillars which might be mistaken for the corn borer?

EXPERT: Because of its habit of boring into the cornstalks, the stalk borer is often mistaken for the European corn borer. The stalk borer also tunnels into the stalks of several other cultivated crops and flowers and into weeds. In corn it works habitually within the growing tip (heart) and stalk of young corn.

Young caterpillars of the stalk borer are very easy to distinguish from





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those of the corn borer. The stalk borers bear a dark-brown or purple band around the middle of the body and several conspicuous brown or purple stripes run lengthwise of the body. The corn borer does not possess these conspicuous bands or stripes. As the stalk borer gets its full growth, however, these bands or stripes disappear, and the color becomes plain creamy white or light purple, and only inconspicuous markings are visible. The full-grown stalk borer is slightly more than an inch long and is larger throughout than the corn borer. An important difference is: The stalk borer is never found in corn stalks during the winter.

ANNOUNCER: How should farmers here handle any caterpillar specimens suspected of being corn borers?

EXPERT: Place the suspected caterpillars in a tight tin or glass container, together with a few strips of crumpled paper. Send it to the State entomologist or to the nearest corn borer laboratory. Such laboratories are located as follows:

Sandusky, Ohio; Monroe, Michigan; 615 Front Street, Toledo, Ohio; 17 Division Street, Silver Creek, New York; 10 Court Street, Arlington, Massachusetts.

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IF THE CORN BORER COMES  
(Corn Growing States)

Week of April 2

(NOT FOR PUBLICATION)

ANNOUNCEMENT: It takes more than the presence of an insect pest to dishearten American farmers. The March surveys of intentions to plant corn indicate larger acreages than last year's in most states invaded by the corn borer and in other corn growing states. Dependence evidently is being placed in clean-up and quarantine to keep the whip hand over the borer. Station \_\_\_\_\_ therefore has secured explanations of the quarantine for this week's discussion of what we will face IF THE CORN BORER COMES to this region.

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There is no immigration quota for members of the race, *Pyrasta Nubilalis*. All are excluded from entry to the United States, and descendants of members of this tribe which have reached this country from the Old World are confined as closely as possible to the regions where they have established residence.

Which is to say that the European corn borer (scientific name, *Pyrasta nubilalis*) is barred from entry into this country in shipments of plants or plant products, and from travel out of infested areas within the country in similar shipments.

There are now in force two federal quarantines against the corn borer-- a foreign and a domestic. The foreign quarantine prohibiting the entrance of any plant products likely to contain the pest has been strictly enforced at all ports of entry since 1921 by the Federal Horticultural Board. Since 1920 the domestic quarantine has been in force. It prevents the movement of all infested material into "clean" territory and is enforced by the Bureau of Entomology in cooperation with the Federal Horticultural Board and the various States affected. Many of the states have their own quarantine regulations in addition.

The products under federal quarantine vary in different parts of the country. In the Great Lakes region they are all parts of the corn plant, broom corn, sorghum, and Sudan grass. This quarantine applies the year around. None of these products can be moved out of the infested area, or reshipped, even if grown in non-infested territory, unless a certificate of inspection is obtained from the quarantine authorities.

An additional quarantine, effective between the dates of June 1 and December 31 each year, is laid in eastern Massachusetts, New Hampshire, Main, Rhode Island, Connecticut, and Fishers Island, New York, on the following: Celery, green beans in the pod, beets with tops, rhubarb, oat and rye straw as such or when used as packing, cut flowers and entire plants of chrysanthemum, aster, cosmos, zinnia, hollyhock, gladiolus, and dahlia.





The question comes up at once, how effective has the quarantine been in preventing spread of the corn borer.

The borer fighters reply that, due to the quarantine restrictions, long distance spread by artificial means has been practically eliminated. In no case has a serious infestation of corn borers been built up in an area isolated from the main infested regions.

All main travelled roads leading out of the infested area are patrolled during the green corn season, and all cars stopped to see if corn is being carried. Last summer and fall, 3,408,872 cars proceeding out of the corn borer area were stopped and 5,764 dozen ears of corn were taken from these cars. Dining cars also are forbidden to carry roasting ears through or out of infested areas. Railroad, steamboat, and other transportation agencies are frequently visited by inspectors in search of possible violations of the quarantine.

Of course, quarantine has no effect on the natural spread of the borers by flight of the moths, winds carrying moths or infested pieces of the corn plant, and the bearing downstream on flood waters of infested stalks.

Now, as the real beginnings of the farm production season come in with April and her showers, farmers in the infested areas are in the midst of the tedious work of disposing of all remnants of last year's corn crop in a way to kill the borer. That means clean plowing, burning of stalks, cobs, and fragments about the fields, feed lots, and barn yards, and shredding and cutting of left-over stalks.

While they are in the thick of the battle against the borer, it is well to consider preparedness measures which can be applied in our territory, fortunate enough to be free as yet from this pest. "Eternal vigilance is the price of safety." One way of practicing vigilance is to be on the lookout for caterpillars which may be the corn borer. But caution should be observed about becoming alarmed over any sort of caterpillar which feeds upon corn. Warnings already have been given in this series of broadcasts not to mistake the corn ear worm or the stalk borer for the corn borer. Today we want to describe the smartweed borer, which is frequently found in corn during the fall, winter, and spring.

In appearance and work this native borer resembles the European corn borer so closely that it is very difficult to distinguish between them. The smartweed borer usually feeds within the stems of smartweed, but it commonly bores into the stalks of corn and other plants when seeking winter quarters.

It is known to be very numerous throughout the eastern part of the country and many false reports of European corn borer occurrence have been due to the presence of the smartweed borer.

The caterpillars of the smartweed borer are about three-fourths of an inch long when full grown, slightly smaller than the corn borer, and less robust. Smartweed borer caterpillars always are slate colored or gray when full grown and in the living state they bear a very fine, faint line of darker color running along the middle of the back, whereas in the living corn

1. The above information was obtained from the records of the United States Department of the Interior, Bureau of Land Management, and is being furnished to you for your information.

borer this line is decidedly broader and very conspicuous. Except for these differences and one or two others discernible only to the entomologist working with a microscope, these two kinds of borers have the same appearance when full grown. On hatching from the eggs the small caterpillars of the corn borer have black heads, while those of the smartweed borer have pale amber colored heads.

Caterpillar specimens suspected of being European corn borers should be placed in a tight tin or glass container, together with a few strips of crumpled paper, and sent to the State entomologist, or to the nearest corn borer laboratory. Such laboratories are located at Sandusky, Ohio, Monroe Michigan, and 615 Front Street, Toledo, Ohio.

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ANNOUNCEMENT: Next week, at this period, listeners of Station \_\_\_\_\_ will learn the results, to date, of attempts to find a parasite of the corn borer which will cut down the numbers of the pest.

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